

HUDSONVILLE 8TH GRADE ALGEBRA COURSE FRAMEWORK



PACING GUIDE	UNIT SCOPE & SEQUENCE	STANDARDS	UNIT LEARNING TARGETS
August	Unit 1 Solving Equations Bootcamp		- I can solve linear equations using addition, subtraction, multiplication, and division. - I can solve multistep equations using the distributive property. - I can set up and solve a linear equation from a story problem
September	Unit 2 Part A Solving Equations and Inequalities		Need Access to Folder
September / October	Unit 2 Part B Geometry Unit from 8th Grade	8.G.1a-c 8.G.2 8.G.3 8.G.4	- verify experimentally the properties of rotations, reflections, and translations: - Lines are taken to lines and line segments to line segments of the same length. - Angles are taken to angles of the same measure. - Parallel lines are taken to parallel lines. - understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them. - describe the effect of dilations, translations, rotations, and reflections on two dimensional figures using coordinates. - understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them.
October / November	Unit 3 Functions		- I can explain what a function is - I can determine whether relations are functions - I can distinguish the difference between domain and range - I can find the domain and range of a function

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			• I can distinguish the difference between independent and dependent variables • I can identify the independent and dependent variables of functions • I can identify linear functions using graphs, tables, and equations • I can determine whether the domain for a function is discrete or continuous • Use function notation to evaluate • I can use function notation to interpret functions • Use function notation to solve and graph functions. • I can graph equations of horizontal and vertical lines • I can explain the difference between x and y intercepts. • I can find the x-intercepts and y-intercepts from an equation. • I can graph linear equations in standard form using intercepts. • I can characterize the slope of a line • I can find the slope of a line from a graph • I can find the slope of a line from a table • I can identify the slope and y-intercept from an equation • I can use slope intercept form to graph a linear function • I can use an equation to determine if the graph was translated up or down. • I can determine if the graph was translated left or right from the equation. • I can determine if the graph was reflected over the x-axis from the equation. • I can use an equation to determine if the graph was reflected over the x-axis. • Learning Target/Success Criteria • I can use an equation to determine if the graph was vertically stretched or shrunk • I can use an equation to determine if the graph was horizontally stretched or shrunk • I can combine transformations of graphs of linear functions • I can translate graphs of absolute value functions. • I can stretch, shrink, and reflect graphs of absolute value functions. • I can combine transformations of graphs of absolute value functions.
November / December	Unit 4 Writing Linear Equations		• I can identify what slope intercept form of a line looks like • I can explain what m represents in the formula $y=mx+b$ • I can explain what b represents in the formula $y=mx+b$

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			• I can calculate the slope from two points • I can construct an equation for a line in slope intercept form given the slope and the y-intercept as points • I can construct an equation for a line in slope intercept form given a graph • I can identify what point-slope form looks like • I can explain what y_1 and x_1 represent in the equation $y - y_1 = m(x - x_1)$ • I can explain what m represents in the equation $y - y_1 = m(x - x_1)$ • I can write an equation for a line in point slope form using 2 given points • I can write an equation for a line in point slope form using a graph • I can write an equation in slope-intercept form from the slope and a given point • I can determine whether a table follows a linear pattern or not • I can determine whether two lines are parallel based on their slopes • I can determine whether two lines are perpendicular based on their slopes • I can write an equation of the line that passes through a given point and is parallel to the given line • I can write an equation of the line that passes through the given point and is perpendicular to the given line • I can determine whether a scatterplot shows a positive, a negative, or no correlation • I can write an equation for a line of fit for a given data set • I can use my calculator to get lines of best fit • I can determine what type of correlation the line of fit has based on the correlation coefficient • I can distinguish between correlation and causation • Learning Target/Success Criteria • I can write the terms of arithmetic sequences. • I can graph arithmetic sequences. • I can write arithmetic sequences as functions. • I can evaluate piecewise functions. • I can graph and write piecewise functions. • I can graph and write step functions.
January	Unit 5 Systems of Equations		• I can check solutions of systems of linear equations. • I can solve systems of linear equations by graphing. • I can solve systems of linear equations by substitution

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			• I can write systems to represent real life situations • I can solve systems of linear equations by elimination • I can solve absolute value equations by graphing. • I can graph linear inequalities in two variables. • I can use linear inequalities to solve real-life problems. • I can graph systems of linear inequalities. • I can write systems of linear inequalities.
February	Unit 6 Exponential Functions		• I can use zero and negative exponents • I can use the properties of exponents. • I can find nth roots. • I can evaluate expressions with rational exponents. • I can identify and evaluate exponential functions. • I can graph exponential functions. • I can use and identify exponential growth and decay functions. • I can interpret and rewrite exponential growth and decay functions. • I can solve exponential equations with the same base. • I can solve exponential with unlike bases. • I can solve exponential equations graphing. • I can identify geometric sequences. • I can write geometric sequences as functions. • I can write terms of recursively defined sequences. • I can write recursive rules for sequences. • I can translate between recursive rules and explicit rules. • I can write recursive rules for special sequences.
February	Unit 7 Factoring		• I can explain the difference between a monomial, binomial, and a polynomial • I can determine the degree of a monomial • I can determine the degree of a polynomials • I can add two polynomials together • I can subtract two polynomials • I can determine the leading coefficient of a polynomial • I can multiply two binomials • I can describe what FOIL is • I can multiply a binomial and a trinomial • I can determine if something is a binomial squared or a sum and difference special product

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			• I can factor out a GCF • I can factor x^2+bx+c • I can factor ax^2+bx+c • I can factor a difference of 2 squares problem • I can factor a perfect square trinomial problem • I can factor by grouping • I can decide which type of factoring to use for a problem
March	Unit 8 Graphing Quadratics		• I can Identify the vertex of a parabola from the graph • I can identify the zeros of the parabola from the graph • I can identify the axis of symmetry of a parabola from the graph • I can describe what "a" does in $y=ax^2$ • I can describe what "c" does in $y=ax^2+c$ • I can explain what form this is and what it tells me in $y=ax^2+bx+c$ • I can describe the domain of all quadratics • I can find the range of a quadratic function • I can tell if a quadratic has a max or a min • I can find the max or min value of a quadratic • I can decide if a function is odd or even • I can describe what "h" does in $y=a(x-h)^2+k$ • I can explain what form this is and what it tells me in $y=a(x-h)^2+k$ • I can write an equation for a quadratic given the vertex and a random point • I can explain what form this is and what it tells me in $y=a(x-p)(x-q)$ • I can use intercept form to find the zeros • I can write an equation for a quadratic given the zeros and a random point • I can write an equation for a quadratic given the range • I can write functions to model data sets • I can determine which type of function will represent a data set
March / April	Unit 9 Part A Radicals & Pythagorean Theorem		• I can simplify perfect whole number radicals. • I can simplify nonperfect whole number radicals. • I can simplify whole number radicals with variables. • I can simplify radicals using the quotient property.

HUDSONVILLE 8TH GRADE ALGEBRA COURSE FRAMEWORK



			• I can rationalize the denominator. • I can use the conjugate(s). • I can adding & subtracting radicals. • I can multiply radicals. • I can simplify cube roots.
April	Unit 9 Part B Solving Quadratics		• I can solve quadratic equation by graphing. • I can use graphs to find & approximate the zeros. • I can solve real-life problems using graphs of quadratic functions. • I can solve quadratic equations using square roots. • I can solve quadratic equations by completing the square. • I can find & use the maximum & minimum values. • I can solve quadratic equations by using the Quadratic Formula. • I can interpret the discriminant. • I can solve nonlinear systems of equations algebraically. • I can solve real-life quadratic problems using any method.
May	Unit 10 Radical Functions and Inverse Functions		• I can graph square root functions. • I can identify transformations of square root functions. • I can identify the domain & range of square root functions. • I can solve equations involving real-world square root functions. • I can graph cube root functions. • I can identify transformations of cube root functions. • I can identify the domain & range of cube root functions. • I can solve equations involving real-world cube root functions. • I can solve radical equations. • I can identify & find the inverse of a relation. • I can graph a linear relation & its inverse. • I can write the inverse of a linear function. • I can graph a nonlinear relation & its inverse. • I can write the inverse of a nonlinear function.